What is claimed is:

1. A multi-display supporting multi-view video object-based encoding apparatus, comprising:

a shape abstracting means for receiving a left-eye image object video (L) and a right-eye image object video (R) from outside and abstracting a left object image (LS) and a right object image (RS), respectively, to abstract the shape information of a multi-view video;

a data separating means for receiving the right/left-eye image object video (L/R) from outside, and the right/left shape (LS/RS) information transmitted from the shape abstracting means, and separating the videos and the shape information into odd field objects and even field objects to transmit only essential bit streams for a display mode of the multi-view video;

a shape compensation means for compensating for the distortion of the shape information (shape of the (LO,LE)/(RO,RE) object) separated into odd and even fields by the data separating means; and

an object-based encoding means for receiving the object-based information inputted from the shape compensation means and the object-based information inputted from the data separating means, forming four layers, i.e., LO stream, LE stream, RO stream and RE stream, and performing motion and disparity estimation based on shape encoding and shape texture to encode object-based data that are separated into odd and even lines.

2. The apparatus as recited in claim 1, wherein the shape abstracting means includes shape separator 1 and shape separator 2 for receiving the left-eye image object video (L) and the right-eye image object video (R), respectively, and if the shape information abstracted from the left-eye image is referred to in the right-eye image processing, the shape abstractor 2 receiving the right-eye

image refers to the left-eye shape information in the shape abstractor 1 and abstracts the right-eye image, or if the left-eye image shape information is not referred to, the shape abstractor 2 operates independently from the shape abstractor 1 and refers to the shape information abstracted from the reference view image, which is the left-eye image, to abstract the shape of the other-view image.

3. The apparatus as recited in claim 1, wherein the data separating means receives the left object image (LS) and the right object image (RS) corresponding to the shape information to output field-based shape information, and receives the left-eye image object video (L) and the right-eye image object video (R) to output an odd field object (LO) of the field-based left-eye image, an even field object (RE) of the right-eye image, an even field object (LE) of the left-eye image, and an odd field object (RO) of the right-eye image, which are also field-based images.

4. The apparatus as recited in claim 3, wherein the shape compensation means performs compensation on the field object-based shape outputted from the data separating means to compensate for the shape distortion that may be caused by separating the shape information on a field basis, each field containing discontinuous image lines, and compensates for the shape distortion caused by separating one shape information into two or more shape information.

5. The apparatus as recited in claim 4, wherein the object-based encoding means is formed of four layers for processing field objects so as to encode the object-based data that are separated into odd and even lines

6. A multi-display supporting multi-view video object-based encoding method and applied to a multi-view video object-based encoding apparatus, comprising the steps of:

a) receiving a left-eye image object video (L) and a right-eye image object video (R) from outside and abstracting a left object image (LS) and a right object image (RS), respectively, to abstract the shape information of a multi-view video;

b) receiving the left-eye image object video (L) and the right-eye image object video (R) from outside, and the right/left shape (LS/RS) information transmitted from the step a), and separating the videos and the shape information into odd and even field objects to transmit only essential bit streams for a display mode of the multi-view video;

c) compensating for the distortion of the shape information (shape of the (LO,LE)/(RO,RE) object) separated into odd and even fields; and

d) receiving the compensated object-based information and the separated object-based information, forming four layers, i.e., LO stream, LE stream, RO stream and RE stream, and performing motion and disparity estimation based on shape encoding and shape texture to encode the object-based data that are separated into odd and even lines.

7. A multi-display supporting multi-view video object-based transmission system, comprising:

an object-based encoding means for receiving right and left two-channel videos (L and R) for the right and left eyes from outside, separating the videos into odd and even field objects, respectively, i.e., an odd field object (LO) of the left-eye image, an even field object (RE) of the right-eye image, an even field object (LE) of the left-eye image, and an odd field object (RO) of the right-eye image, forming a main layer and sub-layers out of the separated field objects, and performing encoding, so as to transmit only essential bit streams needed for a transmitting/receiving end in accordance with a binocular three-dimensional video display mode; and

a system multiplexing means for receiving the bit streams of the odd field object (LO) of the left-eye image, the even field object (RE) of the right-eye image, the even field object (LE) of the left-eye image, and the odd field object (RO) of the right-eye image, which are transmitted from the object-based encoding means, and the user display information, and multiplexing only essential bit streams.

8. The transmission system as recited in claim 7, wherein the object-based encoding means includes:

a shape abstracting unit for receiving a left-eye image object video (L) and a right-eye image object video (R) from outside and abstracting a left object image (LS) and a right object image (RS), respectively, to abstract the shape information of the multi-view video;

a data separating unit for receiving the left-eye image object video (L) and the right-eye image object video (R) from outside, and the right/left shape (LS/RS) information transmitted from the shape abstracting unit, and separating the videos and shape information into odd and even field objects to transmit only essential bit streams needed for a display mode of the multi-view video;

a shape compensation unit for compensating for the distortion of the shape information (shape of the (LO,LE)/(RO,RE) object) separated into odd and even fields by the data separating unit; and

a object-based encoding unit for receiving the object-based information inputted from the shape compensation unit and the object-based information inputted from the data separating unit, forming four layers, i.e., LO stream, LE stream, RO stream and RE stream, and performing motion and disparity estimation based on shape encoding and shape texture to encode object-based data that are separated into odd and even lines.

9. The transmission system as recited in claim 7,

wherein the object-based encoding means uses shape and texture to perform motion and disparity estimation based on the inter-layer relationship that allows the transmission of essential bit streams only, which are required for a transmitting/receiving end in accordance with a binocular three-dimensional video display mode.

10. The transmission system as recited in claim 7, wherein the object-based encoding means uses shape and texture to perform motion and disparity estimation based on the relationship between two layers that encode the odd and even field objects of the left-eye image, or the odd and even field objects of the right-eye image, required for a two-dimensional monocular video display mode.

11. The transmission system as recited in claim 7, wherein the object-based encoding means uses shape and texture to perform motion and disparity estimation based on the relationship between two layers that encode one field object of the left-eye image and one field object of the right-eye image, required for a binocular three-dimensional field shuttering video display mode.

12. A multi-display supporting multi-view video object-based reception system, comprising:

a system demultiplexing means for demultiplexing the bit stream transmitted from outside based on a user display mode, and outputting the demultiplexed bit stream into a multi-channel bit stream;

an object-based decoding means for decoding the multi-channel, i.e., 2-channel or 4-channel, object-based bit stream based on the user display mode; and

a display means for performing two-dimensional video display or binocular field/frame-based time lag display based on the request from the user so as to display a video restored by the object-based video decoding means.

13. The reception system as recited in claim 12, wherein the object-based decoding means uses shape and texture to perform motion and disparity estimation based on the inter-layer relationship that allows the transmission of the essential bit streams only, which are required for a transmitting/receiving end in accordance with a binocular three-dimensional video display mode.

14. The transmission system as recited in claim 12, wherein the object-based decoding means uses shape and texture to perform motion and disparity estimation based on the relationship between two layers that encode the odd and even field objects of the left-eye image, or the odd and even field objects of the right-eye image, which are required for a two-dimensional monocular video display mode.

15. The transmission system as recited in claim 12, wherein the object-based decoding means uses shape and texture to perform motion and disparity estimation based on the relationship between two layers that encode one field object of the left-eye image and one field object of the right-eye image, required for a binocular three-dimensional field shuttering video display mode.

16. A multi-display supporting multi-view video object-based transmission method, comprising the steps of:

a) receiving right and left two-channel images (L and R) for the right and left eyes from outside, separating the images into odd and even field objects, i.e., odd field object of the left-eye image (LO), even field object of the right-eye image (RE), even field object of the left-eye image (LE), and odd field object of the right-eye image (RO), forming a main layer and sub-layers of the separated field objects and perform encoding so that only essential bit streams needed for a transmitting/receiving end are

transmitted in accordance with a binocular three-dimensional video display mode; and

b) receiving the encoded bit streams of the field objects, i.e., odd field object of the left-eye image (LO), even field object of the right-eye image (RE), even field object of the left-eye image (LE), and odd field object of the right-eye image (RO), and the user display information, and multiplexing only the essential bit streams.

17. The transmission method as recited in claim 16, wherein the encoding process of the step a) uses shape and texture to perform motion and disparity estimation by the inter-layer relationship that allows the transmission of the essential bit streams only required for a transmitting/receiving end in accordance with a binocular three-dimensional video display mode.

18. A multi-display supporting multi-view video object-based receiving method, comprising the steps of:

a) demultiplexing the bit stream transmitted from a system multiplexing unit, and outputting the demultiplexed bit stream into a multi-channel bit stream based on a user display mode;

b) decoding the multi-channel, i.e., two-channel or four-channel, input object-based bit stream based on the user display mode; and

c) performing two-dimensional video display or binocular field/frame-based time lag display upon the request from a user to display the image restored in the step b).

19. The receiving method as recited in claim 18, wherein the decoding process of the step b) uses shape and texture to perform motion and disparity estimation by the inter-layer relationship that allows the transmission of the essential bit streams only required for a

transmitting/receiving end in accordance with a binocular three-dimensional video display mode.